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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/666,102	FINK ET AL.
	Examiner	Art Unit	
	Philip Wang	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 July 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to RCE filed on 7/10/2007.

2.   The 35 USC § 112, 2nd paragraph rejections of claims 1-22 are withdrawn in view of the amendment to the claims.

3.   Per Applicant's request, claims 1, 2, 4, 5, 9, 10-12, 16, 22, 23, and 26 have been amended.

4.   Claims 1-30 remain pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.   Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 16, and 23 contain the following limitation –

"determining whether an interval has transpires during program execution;

continuing the program until the interval transpires if the interval has not

transpired;

examining each stack's content and <u>incrementing the activation count for each frame</u> on the interval has transpired;

analyzing the stack for each thread and <u>incrementing the activation count for each frame;</u>"

According to the language of the claims, the activation count for each frame is incremented twice: once when the interval has transpired; and once when analyzing the stack. Upon review of the specification, the examiner can not find any disclosure in the specification describing incrementing the activation count for each frame during analyzing of the stack.

Claims 2-15 depend on claim 1; claims 17-22 depend on claim 16; claims 24-30 depend on claim 23 and suffer the same deficiency.

6.   Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Independent claims 1, 16, and 23 contain the following limitation –

"determining whether an interval has transpires during program execution;

continuing the program until the interval transpires if the interval has not

transpired;

examining each stack's content and <u>incrementing the activation count for each</u>

<u>frame</u> on the interval has transpired;

analyzing the stack for each thread and <u>incrementing the activation count for</u>

<u>each frame;</u>"

According to the language of the claims, the activation count for each frame is

incremented twice: once when the interval has transpired; and once when analyzing

the stack. Upon review of the specification, the examiner cannot find any disclosure in

the specification describing incrementing the activation count for each frame twice that

will enable one skilled in the art at the time of the invention to perform the invention.

Claims 2-15 depend on claim 1; claims 17-22 depend on claim 16; claims 24-30 depend

on claim 23 and suffer the same deficiency.

7.   Claims 5, 13, 22, and 26 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. The examiner believes that

nowhere in the specification provides any description for such limitation. No prior art rejection will be provided for these claims. Please see examiner's response item 1 for further detail.

8.   Claims 9, 10, 11, 12, and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The only location in the specification that mentions these limitations is in paragraph [0018]. According to this disclosure, it appears that functions performed are at the end of phase, instead of after the step of associating the phase. No prior rejections will be provided for these claims.

9.   Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1, 16, and 23 recite the limitation of associating a phase with an activation. Though the specification describes step 110 "the system associates a phase with an activation". Per page 9 of the remark, the Applicant states "Each execution of a procedure is referred as an activation of the procedure." At the same time, the specification, [0005], defines a phase as a method or

function performed by a computer program. It appears the terms "phase" and "activation" both mean the execution of a procedure, method or function. So, "associating a phase with an activation" means associating "the execution of a procedure, method or function with a execution of a procedure, method or function". It is possible to associate the execution of a procedure, method or function with itself. It is really nor clear what is the meaning of such limitation. All dependent claims of claims 1, 16, and 23 suffer the same deficiency as claims 1, 16, and 23 and are rejected for the same reason above.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10.   Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Claim 9 appears to be an incomplete sentence.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1.   Claims 1-4, 6-8, 12, 14-21, 23-25, and 27-29 are rejected under 35 U.S.C. 102(e)

as being anticipated by Houldsworth (US Patent No. 6,557,091).

As per claim 1,

Houldsworth discloses

allocating space in memory for an activation count for each frame (FIG. 5,

HT/COUNT is memory allocated);

zeroing the activation count wherever the program creates a new stack frame

(It is inherent when it is initialized, see for example FIG. 4

HT/COUNT, left col.);

determining whether an interval has transpires during program execution;

continuing the program until the interval transpires if the interval has not

transpired; examining each stack's content and incrementing the activation count

for each frame on the interval has transpired (c7:35-46, where

generation garbage collection is disclosed. Since

generation garbage collection is based on age, therefore,

there is a timer/clock associated with each object so as to

record the age of an object.);

analyzing the stack for each thread and incrementing the activation count for

each frame (FIG. 5, HT/COUNT shows and count of 2 after

incrementing.); and

associating a phase with an activation whose activation count is non-zero (FIG.

5, an SF is associated with a phase with a count of 2 which is

non-zero).

As per claim 2,

the rejection of claim 1 is incorporated;

further Houldsworth discloses

- step c) further comprises logging activation counts during each interval

    (c3: 27-28, "…periodically determining…").

As per claim 3,

the rejection of claim 1 is incorporated;

further Houldsworth discloses

- the activation count is implemented by reserving storage in each stack

    frame (c6: 35-36, "…a specific table TT for each

    thread…").

As per claim 4,

the rejection of claim 1 is incorporated;

further Houldsworth discloses

- performing step performing step c) at periodic intervals of time according
  to a system clock (c3: 27-28, "...periodically determining...").

As per claim 6,

the rejection of claim 1 is incorporated;

Houldsworth discloses

- comprising ensuring that when a phase ends, an action is performed
  immediately (c7: 49-51,"...As local garbage is collected at
  procedure exits...").

As per claim 7,

the rejection of claim 6 is incorporated;

further Houldsworth discloses

- changing the return address to force the program to call a designated
  procedure when the frame returns c7: 49-51, "...As local garbage is
  collected at procedure exits...").

As per claim 8,

the rejection of claim 1 is incorporated;

further Houldsworth discloses

- scheduling garbage collection after each associated phase (c2: 23-25,

    "…singly referenced objects may be garbage collected…").

As per claim 12,

the rejection of claim 1 is incorporated;

Houldsworth discloses

- further comprising resetting profile data at program phase transitions (c2:

    29-31, "…global flag set by…").

As per claim 14,

the rejection of claim 1 is incorporated;

Houldsworth discloses

- implementing activation counts in a side data structure (Fig. 6, where

    HT/COUNT is a side data structure.).

As per claim 15,

the rejection of claim 1 is incorporated;

Houldsworth discloses

- the activation count is implemented as an array paralleling the stack `(c7, 11-13, "...could be held in an array...")`.

Claims 16-21 are system claims that recite the same limitation as claims 1-4, and 7 and are rejected for the same reasons above.

Claims 23-25, 27-29 computer readable medium claims recite the same limitation as claims 1-3, and 7-8 and are rejected for the same reasons above.

Response to Arguments

In the remark,

Applicant argues:

1) Per 35 USC. 112 first paragraph rejections for claims 5, 13, 22, and 26 for failing to comply with the written description requirement, the Applicant argues that the originally files claims are part of the specification.

Examiner's response:

1) Per MPEP, 2163, 2163 [R-5] Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, para. 1, "Written Description" Requirement, section 1, A Original Claims,

"... the issue of a lack of adequate written description may arise even for an original claim when an aspect of the claimed invention has not been described with sufficient particularity such that

one skilled in the art would recognize that the applicant had possession of the claimed

invention."

The examiner considers claims 5, 13, 22, and 26 are lack of adequate written description as

required set forth in MEMP section 2163.

Claims 5, 22, and 26 recite the limitation of

"... determining the number of frames used in the stack..."

It appears that there is no description of such limitation in the specification; therefore the

claimed invention has not been described with sufficient particularity such that one skilled in the

art would recognize that the applicant had possession of the claimed invention.

Claim 13 recites the limitation that "the activation count is represented by a single bit,

representing or absence of a running phase." According to [0017], the activation count is

number of times an interval has expired. If the activation count is one bit, the maximum

number an interval can expire is one. The activation count is not used to represent the

presence or absence of the running phase according to the Applicant's specification; therefore

the claimed invention has not been described with sufficient particularity such that one skilled in

the art would recognize that the applicant had possession of the claimed invention.

Per Applicant's argument regarding inconsistency between claim 13 and the detailed

description,

On page 9, 1st paragraph of the remark, the Applicant states

> "There is actually no inconsistency. Paragraph [0017] does not
> say the activation count is the number of time that an interval
> has expired…the counter is incremented for each frame, not for
> every interval."

While in contrast, Specification, [0017], lines 12-14, specifically describes

> "Once the interval has expires, in step 108 the program walks…
> each thread's stack and increments the activation count for each
> frame."

The description in the Specification clearly shows "Once the interval has expires the
activation count for each frame is incremented.

The page 8, the Applicant considers that the above language represents two different ways of
saying the same thing. The examiner disagrees that "incrementing the activation count by the
number of frames" is the same as " incrementing the activation counter for each frame in the
stack." It would be obvious to see that what is being incremented in the latter scenario does not
include the number of frame at all.

For reasons above, the examiner maintain the original rejections.

Applicant argues:

2) Regarding claim rejections under 35 USC § 112, Applicant argues the claim limitations are well know in the art by citing various references.

Examiner's response:

2) The examiner consider the function recited in claims 9-12, such as, thread switching, checkpoint operations, visualization of program phase behavior, and resetting profile are well known in the art.

Applicant argues:

3) Per 35 USC § 102 rejections, on page 12 of the remark, Applicant states "The term "activation count" is a known term and an activation count represents the number of activations.

Examiner's response:

3) The applicant have tried to define the activation count as the number of activation, which is different from what the specification has disclosed. [0017] of the specification expressively defines activation count bearing a meaning different from what the Applicant has stated in the remark.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Wang whose telephone number is 571-272-5934. The examiner

can normally be reached on Mon - Fri 8:00 - 4:00PM. Any inquiry of general nature or relating

to the status of this application should be directed to the TC2100 Group receptionist: 571-272-

2100.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WEI ZHEN
SUPERVISORY PATENT EXAM